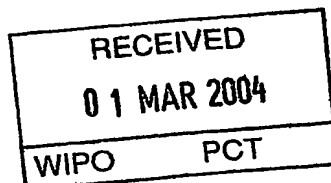


P1 1127315



# THE UNITED STATES OF AMERICA

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February 25, 2004

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE.

APPLICATION NUMBER: 60/431,270

FILING DATE: December 06, 2002

RELATED PCT APPLICATION NUMBER: PCT/US03/38695

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Practitioner's Docket No. CPI 40111

**PATENT**

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P., § 601, 7th ed.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Wayne A. Damrau

For: DOCTOR APPARATUS

Box Provisional Patent Application  
Assistant Commissioner for Patents  
Washington, D.C. 20231

**COVER SHEET FOR FILING PROVISIONAL APPLICATION**  
(37 C.F.R. § 1.51(c)(1))

**WARNING:** "A provisional application must also include the cover sheet required by § 1.51(c)(1) or a cover letter identifying the application as a provisional application. Otherwise, the application will be treated as an application filed under paragraph (b) (nonprovisional application) of this section." 37 C.F.R. § 1.53(c)(1). See also M.P.E.P. § 201.04(b), 6th ed., rev. 3.

**EXPRESS MAILING UNDER 37 C.F.R. § 1.10\***

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**\*WARNING:** Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

(Cover Sheet for Filing Provisional Application [23-1]—page 1 of 5)

- NOTE:** "A complete provisional application does not require claims since no examination on the merits will be given to a provisional application. However, provisional applications may be filed with one or more claims as part of the application. Nevertheless, no additional claim fee or multiple dependent claims fee will be required in a provisional application." Notice of December 5, 1994, 59 Fed. Reg. 63,951, at 63,953. "Any claim filed with a provisional application will, of course, be considered part of the original provisional application disclosure." Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,209.
- NOTE:** "A provisional application is not entitled to the right of priority under 35 U.S.C. 119 or 365(a) or § 1.55, or to the benefit of an earlier filing date under 35 U.S.C. 120, 121 or 365(c) or § 1.78 of any other application. No claim for priority under § 1.78(a)(3) may be made in a design application based on a provisional application. No request under § 1.293 for a statutory invention registration may be filed in a provisional application. The requirements of §§ 1.821 through 1.825 regarding application disclosures containing nucleotide and/or amino acid sequences are not mandatory for provisional applications." 37 C.F.R. § 1.53(c)(3).
- NOTE:** "No information disclosure statement may be filed in a provisional application." 37 C.F.R. § 1.51(d). "Any information disclosure statements filed in a provisional application would either be returned or disposed of at the convenience of the Office." Notice of December 5, 1994, 59 Fed. Reg. 63,591, at 63,594.
- NOTE:** "No amendment other than to make the provisional application comply with the patent statute and all applicable regulations may be made to the provisional application after the filing date of the provisional application." 37 C.F.R. § 1.53(c).
- NOTE:** 35 U.S.C. 119(e) provides that "[i]f the day that is 12 months after the filing date of a provisional application falls on a Saturday, Sunday, or Federal Holiday within the District of Columbia, the period of pendency of the provisional application shall be extended to the next succeeding secular or business day."

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 C.F.R. § 1.51(c)(1)(i).

1. The following comprises the information required by 37 C.F.R. § 1.51(c)(1):
2. The name(s) of the inventor(s) is/are (37 C.F.R. § 1.51(c)(1)(ii)):

**NOTE:** "If the correct inventor or inventors are not named on filing a provisional application without a cover sheet under § 1.15(c)(1), the later submission of a cover sheet under § 1.15(c)(1) during the pendency of the application will act to correct the earlier identification of inventorship." 37 C.F.R. § 1.48(f)(2).

**NOTE:** "The naming of inventors for obtaining a filing date for a provisional application is the same as for other applications. A provisional application filed with the inventors identified as 'Jones et al.' will not be accorded a filing date earlier than the date upon which the name of each inventor is supplied unless a petition with the fee set forth in § 1.17(i) is filed which sets forth the reasons the delay in supplying the names should be excused. Administrative oversight is an acceptable reason. It should be noted that for a 35 U.S.C. 111(a) application to be entitled to claim the benefit of the filing date of a provisional application the 35 U.S.C. 111(a) application must have at least one inventor in common with the provisional application." Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,209.

The term "invention" is typically used to refer to subject matter which applicant is claiming in his/her application. Because claims are not required in a provisional application, it would not be appropriate to reference joint inventors as those who have made a contribution to the "invention" disclosed in the provisional application. If the "invention" has not been determined in the provisional application because no claims have been presented, then the name(s) of those person(s) who have made a contribution to the subject matter disclosed in the provisional application should be submitted. Section 1.45(c) states that "if multiple inventors are named in a provisional application, each named inventor must have made a contribution, individually or jointly, to the subject matter disclosed in the provisional application." All that § 1.45(c) requires is that if someone is named as an inventor, that person must have made a contribution to the subject matter disclosed in the provisional application. When applicant has determined what the invention is by the filing of the 35 U.S.C. 111(a) application, that is the time when the correct inventors must be named. The 35 U.S.C. 111(a) application must have an inventor in common with the provisional application in order for the 35 U.S.C. 111(a) application to be entitled to claim the benefit of the provisional application under 35 U.S.C. 119(e). Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,208.

See 37 C.F.R. § 1.53

1.	<u>Wayne</u>	<u>A.</u>	<u>Damrau</u>
	GIVEN NAME	MIDDLE INITIAL OR NAME	FAMILY (OR LAST) NAME
2.	<u></u>	<u></u>	<u></u>
	GIVEN NAME	MIDDLE INITIAL OR NAME	FAMILY (OR LAST) NAME
3.	<u></u>	<u></u>	<u></u>
	GIVEN NAME	MIDDLE INITIAL OR NAME	FAMILY (OR LAST) NAME

3. Residence address(es) of the inventor(s), as numbered above (37 C.F.R. § 1.51(c)(1)(iii)):

1. 6540 Wazeecha Ridge Court, Wisconsin Rapids, WI 54494

2.

3.

4. The title of the invention is (37 C.F.R. § 1.51(c)(1)(iv)):

DOCTOR APPARATUS

5. The name, registration, customer and telephone numbers of the practitioner (if applicable) is (37 C.F.R. § 1.51(c)(1)(v)):

Name of practitioner: Michael Piontek

Reg. No. 25,605 Tel. (312 ) 236-8123

Customer No. IDON 302826

(complete the following, if applicable)

☐ A power of attorney accompanies this cover sheet.

6. The docket number used to identify this application is (37 C.F.R. § 1.51(c)(1)(vi)):

Docket No.: CPI 40111

7. The correspondence address for this application is (37 C.F.R. § 1.51(c)(1)(vii)):

Michael Piontek, Esq., Pyle & Piontek

221 N. LaSalle Street, Suite 850, Chicago, IL 60601

8. Statement as to whether invention was made by an agency of the U.S. Government or under contract with an agency of the U.S. Government.  
(37 C.F.R. § 1.51(c)(1)(viii))

This invention was made by an agency of the United States Government, or under contract with an agency of the United States Government.

☒ No.

☐ Yes.

The name of the U.S. Government agency and the Government contract number are:

## 9. Identification of documents accompanying this cover sheet:

## A. Documents required by 37 C.F.R. §§ 1.51(c)(2)-(3):

Specification:

No. of pages 7

Drawings:

No. of sheets 3

## B. Additional documents:

☒ Claims:No. of claims 2

Note: See 37 C.F.R. § 1.51.

☐ Power of attorney☐ Small entity assertion☐ Assignment☐ English language translation of non-English provisional application

NOTE: A provisional application which is filed in a language other than English, does not have to have an English language translation. See 37 C.F.R. § 1.52(d)(2). However, if the provisional application is not in the English language and will later serve as a benefit of its filing date for a nonprovisional application, other than a design patent, or for an international application designating the U.S., then an English language translation must be filed in the provisional application or the later filed nonprovisional application. See § 1.78(a)(5)(iv).

☐ This application is in a language other than English and an English translation along with a statement of its accuracy is submitted herewith.☐ Other

## 10. Fee

The filing fee for this provisional application, as set in 37 C.F.R. § 1.16(k), is \$160.00, for other than a small entity, and \$80.00, for a small entity.

☐ Applicant is a small entity.

NOTE: "A . . . statement in compliance with existing § 1.27 is required to be filed in each provisional application in which it is desired to pay reduced fees." Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,197.

## 11. Small entity assertion

☐ The assertion that this is a filing by a small entity under 37 C.F.R. § 1.27(c)(1) is attached. ("ASSERTION OF SMALL ENTITY STATUS")☐ Small entity status is asserted for this application by payment of the small entity filing fee under § 1.16(k), 37 C.F.R. § 1.27(c)(3).

## 12. Fee payment

☒ Fee payment in the amount of \$ 160.00 is being made at this time.☐ No filing fee is to be paid at this time. (This and the surcharge required by 37 C.F.R. 1.16(l) can be paid subsequently).

13. Method of fee payment

- ☒ Attached is a ☒ check ☐ money order in the amount of \$ \_\_\_\_\_
- ☐ Authorization is hereby made to charge the amount of \$ \_\_\_\_\_
- ☐ to Deposit Account No. 10-1324
- ☐ to Credit card as shown on the attached credit card information authorization form PTO-2038.

**WARNING:** Credit card information should not be included on this form as it may become public.

- ☒ Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.

A duplicate of this paper is attached.

Date: \_\_\_\_\_

Tel.: (     )

Date: 12/6/2002

Reg. No.: 25,605

Tel.: ( 312 ) 236-8123

Customer No.: IDON 302826

\_\_\_\_\_  
Signature of submitter

OR  
Michael Piontek

\_\_\_\_\_  
Signature of practitioner

Michael Piontek

\_\_\_\_\_  
(type or print name of practitioner)

PYLE & PIONTEK

221 N. LaSalle Street, Suite 850

\_\_\_\_\_  
P.O. Address

Chicago, IL 60601

## **DOCTOR APPARATUS**

This invention relates to a type of doctor for a coating apparatus and method for coating a traveling web material, such as paper, or for coating the surface of a roll and then transferring said coating to a traveling web in a pressure nip form by another roll, blade or other pressure applying device.

### **Background of the Invention**

It is known to use a doctor roll in a coater such as a short dwell time applicator ("SDTA") or a film coater as shown in U.S. Patent Nos. 4,250,211 and 5,749,972, these patents being incorporated herein by reference, in conjunction with a backing roll to meter coating applied to a moving paper web or first to a roll surface and then onto a moving web of paper. These doctor rolls are difficult to locate in a coater as space is restricted. Heretofore, when the doctor roll is loaded into the web or roll surface being coated, the doctor roll was moved toward or away from the web or roll surface to increase or decrease the loading, respectively. Generally, the doctor roll also tended to move downstream in the direction of the web or roll surface travel. This latter movement was somewhat inconsistent, and consequently caused variation and/or inconsistency in the coating lay and metering by the doctor roll could occur.

### **Summary of the Invention**

The disadvantages of the prior art are overcome by the method and apparatus of the present invention which provides a method and means for supporting the doctor roll to

minimize any movement or travel of the doctor roll in a direction of that of the moving surface of the web or roll and minimize and inconsistency of coating applied to the surface of the web or roll. To accomplish this, the roll is supported in a roll carrier or support which is permitted to move or pivot on a support rod. The support rod itself may form and close off part of the coater application chamber. To support the doctor roll, a rear or downstream (relative to the web or roll surface) support for the doctor roll is provided. To accommodate movement of the roll due to loading by a conventional means (such as a load tube), relative contact between the roll carrier and roll rear support may be curved or radiused to permit the roll carrier or support and roll therein to move or pivot more freely. Preferably, the rear roll support can be in the form of a releasable blade, while the curved or radiused surface is formed on the rear of the roll carrier or support. Thus, the pivoting of the roll support and moving along the radius provides a more consistent environment for the doctor roll, and therefore lay of coating and/or doctoring of coating on the moving web or roll surface, and consequently more consistently coated paper web.

#### **Description of the Drawing**

Figure 1 is a schematic, full scale, cross sectional elevational view of a doctor assembly of the present invention.

Figure 2 is a view similar to Figure 1 but of a second embodiment.

Figure 3 is a partial view similar to Figure 1 and 2, but showing a roll carrier or support for a solid doctor roll.



### **Description of the Preferred Embodiment**

Referring to Figure 1, the coater device is given reference numeral 1. Also part of the coater is body 2 which forms part of the coating chamber 3 and also forms one wall of the coating inlet 3A. The movable wall of the coating chamber as well as the outer wall of the coating chamber is formed by members 4 and 5. Member 5 can be designed to include a clamp tube (not shown but similar to 14 described below) to secure the orifice plate member 6.

An internal coating inlet seal 7 seals the ends of the coating inlet outside of the web run and under the edge dams 8 and 9. There is a metal support for a felt dam 9. This assembly seals the ends of the applicator between the orifice plate 7, roll 10 and doctor assembly. The edge dam assembly can be adjusted laterally on the dovetail or groove 7A on seal 7.

The doctor assembly comprises the carrier, bed or support 11 for the doctor roll or bar 12. The bed or carrier 11 is made of UHMW polyethylene or similar material. The doctor device 12 can be a solid bar (Fig. 3) or a hollow tube (Figs. 1 or 2), with or without grooves. If solid, it is consequently generally of a smaller diameter than a hollow rod type doctor. Either type of doctor roll may be driven to rotate in a direction, usually, opposite the direction of the moving surface travel, be it web or roll. The doctor's diameter can range from 3/8" to 1-1/2". If a hollow tube is used for the doctor device 12, it can be of sweated construction with cold water flowing through its center. A curved bar 13 supports the front of the support 11. The curved bar 13 is clamped to the main coater by an air pressurized clamp tube 14. The curved bar 13 forms a side of the application zone and seals against the edge dam

assembly. Reliefs 15 are provided in the support 11 for the doctor bar 12. These reliefs allow the bar 12 to rotate more easily. Lateral grooves 16 with the pipe taps connections are provided in either end of the support bed 11. Water is provided to these connections and circulated through these grooves or channels 16 to clean and lubricate the doctor bar or roll 12. A concave radius 17 is provided on the support or bed 11 swung from a pivot point 17A on its wall. A support plate 18 supports the support bed 11 of the doctor assembly so that it is contained and not allowed to be moved by the friction against the travel of the web or surface being doctored.

When the doctor roll is driven (as indicated by the small arrow) in a direction opposite backing roll rotation (as indicated by the large arrow), it has a tendency to lift the roll up at the rear. In order to counteract this tendency, associated means both on the doctor roll support 11 and the rear support plate 18 can be provided. For example, the rear support plate 18 may have an upper hooked end 118 which engages in a retaining groove 118B in the doctor support 11 (see Figs. 2 and 3). A doctor load tube 19 (somewhat similar to tube 14 in construction) is provided. It is pressurized with air or other fluid to increase the force of the doctor device against the traveling surface or web being doctored. A flexible profile bar 20 supports the load tube 19. This bar can be profiled (adjusted in its cross machine direction) to give the desired doctor force by adjusting the differential screws thread profile screws 21. There is a plurality of the screws 21 spaced 3 to 4 inches apart laterally across the coater assembly. The doctor support 11, on the end of the curved bar 13, allows the doctor assembly to pivot on the tip of the curved bar 13 when the loading by the load tube 19 is changed. The pivot point 17A shown at dovetail groove 23 retaining the support 11 to the end or tip of the curved bar 13. This connection allows movement and also seals the pivot. It

should be understood there are other pivot connection options, such as a rod and socket assembly, or other means that could be used.

Figure 2 is similar to Figure 1, except it shows the hooked plate 118 which can engage with the groove 118B on the support 11 to limit lift of the doctor. As the coaters shown in Figures 1 and 2 are generally similar except for this difference, similar reference numerals are used in Figure 2, except the number is 100 higher. For example, 4 of Figure 1 is shown as 104 in Figure 2.

Figure 3 is similar to Figures 1 and 2, but only shows the solid doctor rod 212 and its support 211. Note that the doctor rod 212 and its complementary groove receiving the rod are smaller in diameter. Again, except for these differences, the rod and support of Figure 3 are similar to those of Figures 1 and 2, and reference numerals are also similar, except given numbers 200 higher, that is, 23 in Figure 1 or 123 in Figure 2, becomes 223 in Figure 3.

It should be understood that the doctor support of the present invention that can be used with any doctor be it generally integral in a coater, such as a short dwell time applicator type, a stand alone doctor roll, such as in a drip roll, separate doctor. It should also be understood that the doctor roll could be plain smooth surface roll or a grooved roll.

**What Is Claimed Is:**

1. A method for doctoring a coating excess applied by a coater to a moving surface with a doctor roll, comprising the steps of supporting a doctor roll so that it can rotate, mounting the doctor roll so that it moves toward or away from the moving surface, moving the doctor roll in a path as it moves toward or away from the moving surface, and supporting the doctor roll so that its movement in the direction of the moving surfaces is limited, loading the doctor roll against the moving surface for establishing the force of the doctor roll toward the moving surface, doctoring the coating on the moving surface with the doctor roll, whereby the coating on the moving surface is consistently doctor'd by said doctor roll.

2. A doctoring apparatus for doctoring excess coating applied by a coater to a moving surface, comprising a doctor roll for doctoring excess coating from the moving surface, a doctor roll support for said doctor roll, said doctor roll support having a recess to rotatably receive said doctor roll, a movable mounting for attaching said doctor roll support to said coater, said doctor roll support being movable toward or away from said moving surface, means for loading the doctor roll against the moving surface, rear support means for the doctor roll support, said rear support means attached to the coater, said rear support means permitting movement of said doctor roll toward or away from said moving surface, said rear support means limiting movement of said doctor roll in a direction of movement of said moving surface, whereby coating applied to the moving surface may be consistently doctor'd by the doctor roll supported to move toward or away from the moving surface but limited in movement in a direction of the moving surface.

**DOCTOR APPARATUS****Abstract of the Disclosure**

A doctor method and apparatus is disclosed and includes a doctor roll supported in a coater suitable for applying coating to a paper web surface or a roll surface for subsequent transfer to the paper web. The doctor includes a doctor roll, a support for the doctor roll, a front support for holding the roll support and a rear support to help stabilize the support and doctor roll. The present invention minimizes the variation moving the doctor roll has on the coating on the moving surface, and thus can improve coating quality.

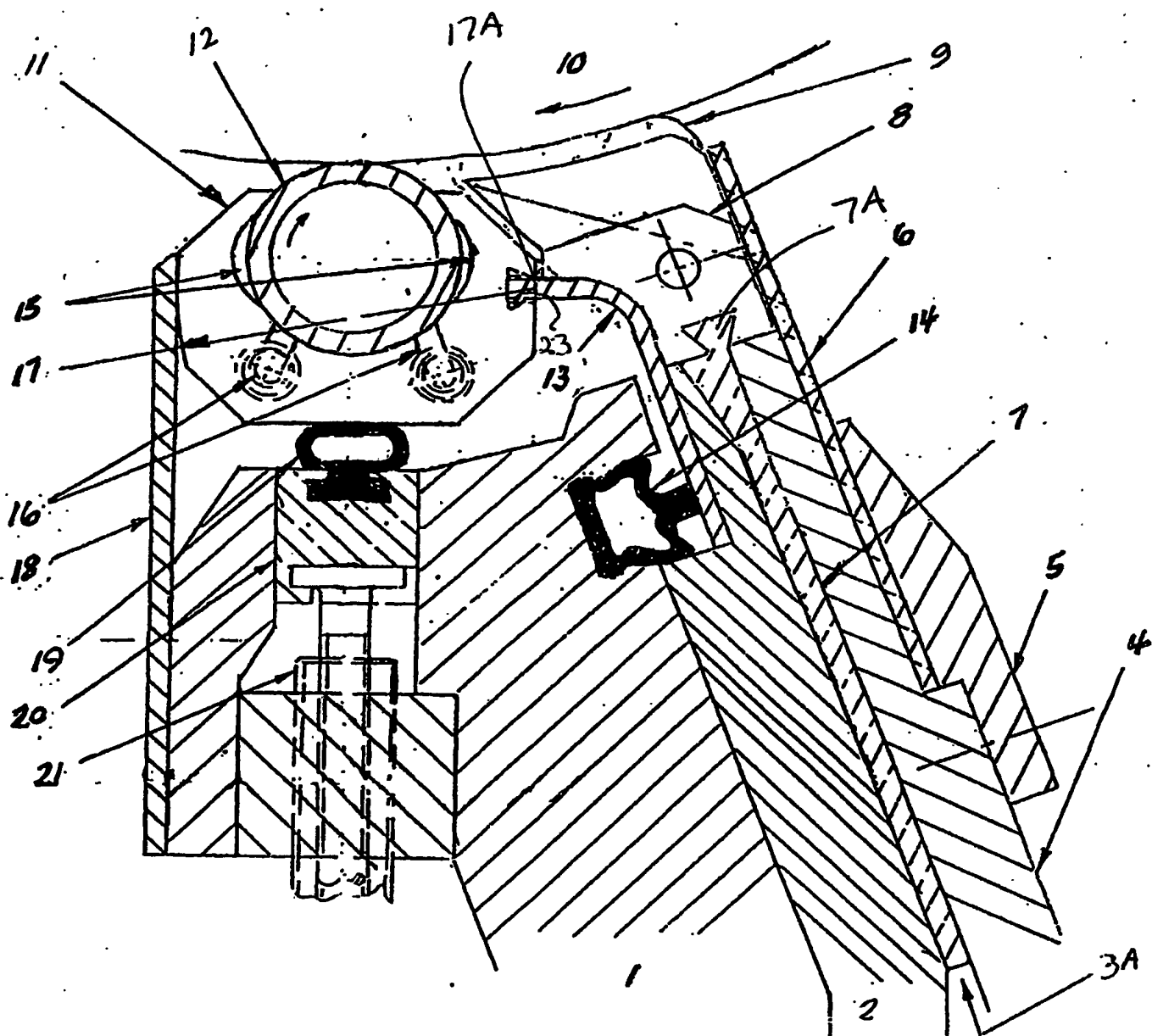
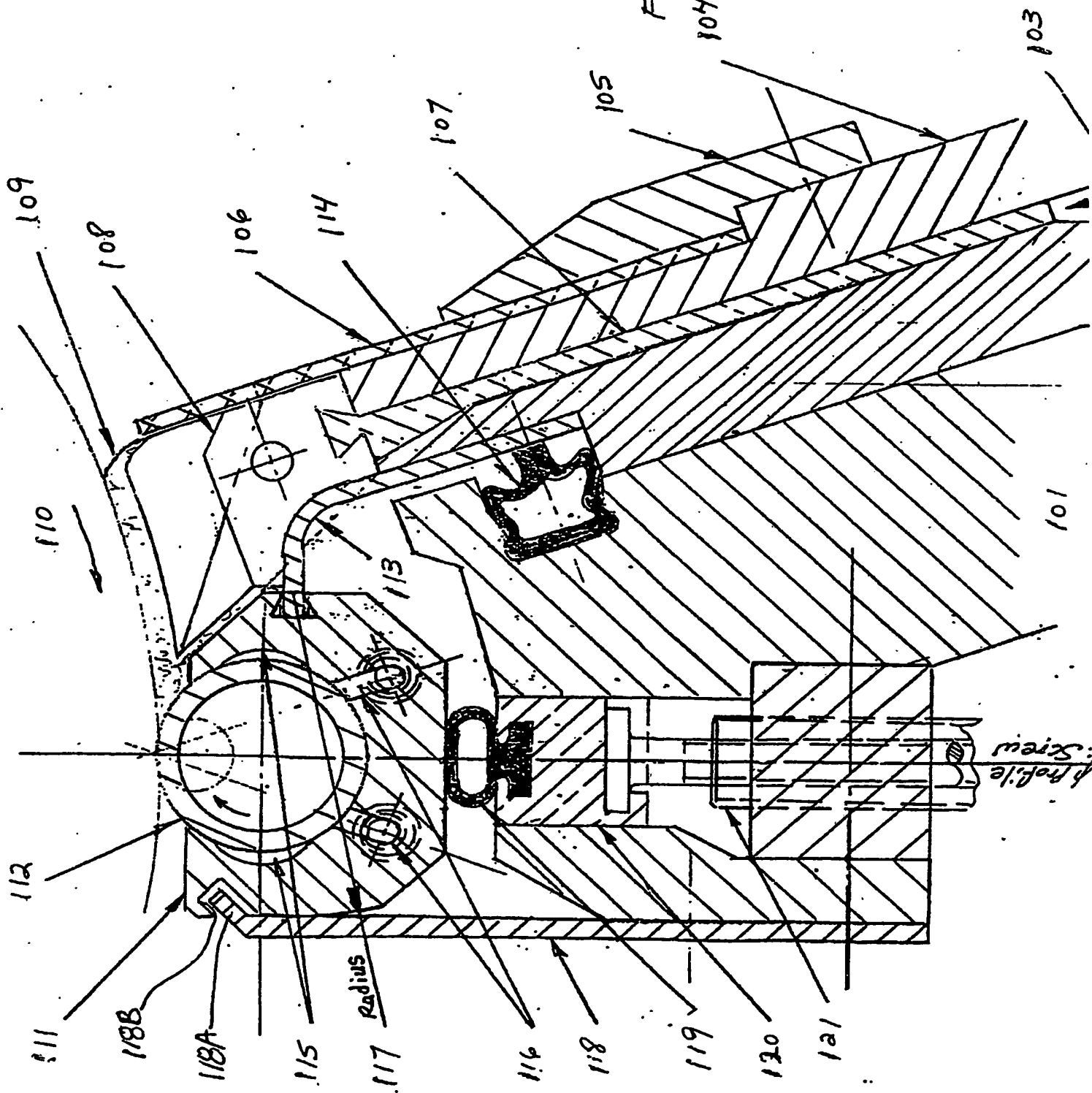


Fig. 1

FULL SIZE

Fig. 2.

Full Size



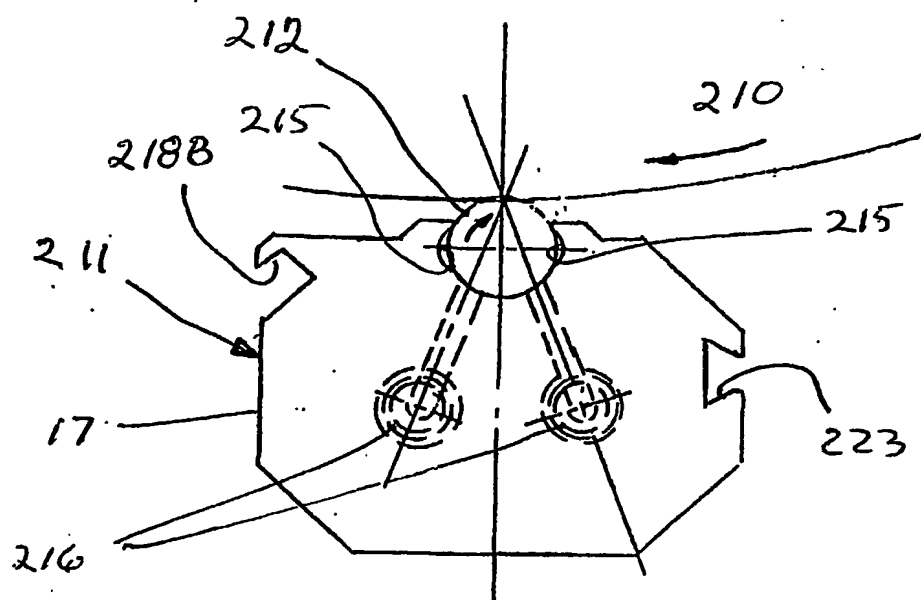


FIG. 3



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